Accessible Fitness Equipment: Facilitating Maximum Involvement

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Accessible Fitness Equipment

One piece of the overall health/wellness/fitness puzzle

- Needs to have **specific attention/priority**: accessible equipment needs to be there so it's ready when you are – when you are ready to exercise, whatever your motivation for it is, then the tools you need must be available.
- ***What's the same? When and how does disability make a difference?***
- **Participation as a measure.** Yes, get people moving. AT can increase activity participation – but the physical body also needs to move.

DO NO HARM

- Margin of Resilience
- Underuse-Overuse
- Achieving Balance
- Comparative Effective Research
  - What works, for whom, when, why, how
  - Contraindications, efficiencies, scale, choice,

Technology features

- **Feedback to the user (self regulation**) – build in or add on; in multiple modes: which accommodate vision, hearing, cognitive variation

- Technology for **monitoring and measuring** (a necessary first step for feedback and CER). Beyond weight scales →

- **Beyond hardware**: e.g. clothing enhancements (Posture Shirt - AlignMed Evidence Based Apparel; Olympic banned swimsuits; lycra for increased proprioceptive input)

- **Software oriented**: measuring, monitoring, biofeedback, feedback to user; commercial mass market for apps, games, fitness-fun environments at all price points

- **Extending applications:** eg FES protocols beyond SCI, Stroke, MS (eg: head injury applications, cardio applications?)

Motivation:
Building it into the technology

- *"if you built it, they will come"* Really?
- **Function**
- **Fear**
- **Co-morbidity**, secondary disabilities.
  e.g. parkinsons on amputation; heart attack on parkinsons; diabetes on anything else; other condition on arthritis; arthritis on another condition
- **Fun**. Reinforcement, maintain interest.
  - do we really have to justify fun beyond medical reimbursement

WII: good job!

Identifying mass market angle(s)

- Medical Fitness Centers: **target: aging boomers**. “If the facility is too "techno" there will be greater issues with service and inoperable equipment. There is nothing more frustrating to members than equipment that is not in good working order. Treadmills with TV's, sound systems, management stations will confuse, and frustrate the typical member of a hospital affiliated facility. Typically the buttons are too small, illegible and inaccessible for the deconditioned, visually impaired and untrained member.”

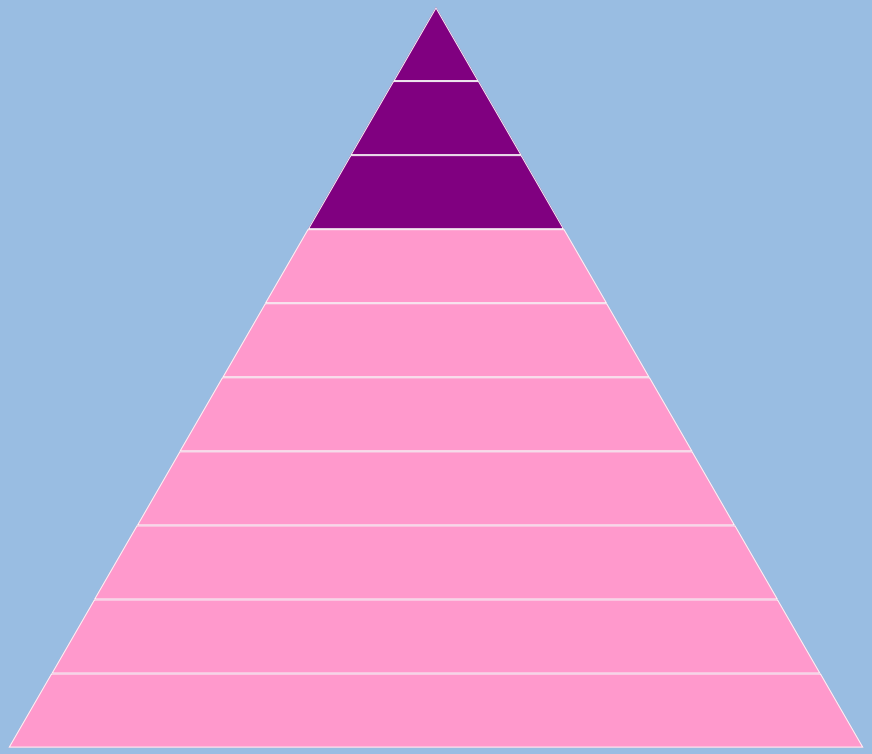
- **Reverse tech transfer**: learning from the rehab market; TENS went home. What happens when you cannot get a cardio effect? FES?
  - And beyond → fitness without going to the gym or sweating would sell a lot of units.

- New Directions, Courage Center, Challenge Center, etc. – how to **move into the mainstream?**

Marketing to Consumers over 50

- Four million Americans turn 50 each year.
- In 2003 people aged 50 and over had nearly $400 billion in disposable income.
- At age 50, adults are likely to experience physical impairments, but not consider themselves to have a disability.
- By the year 2030, 71.5 million Baby Boomers will be over the age of 65 and demanding products, services, and environments that address their age-related physical changes.

More than 7 out of 10 Americans will acquire some sort of disability by the time they reach the age of 75.



NCPAD

Physical Activity is for Everybody!

The Emerging Market

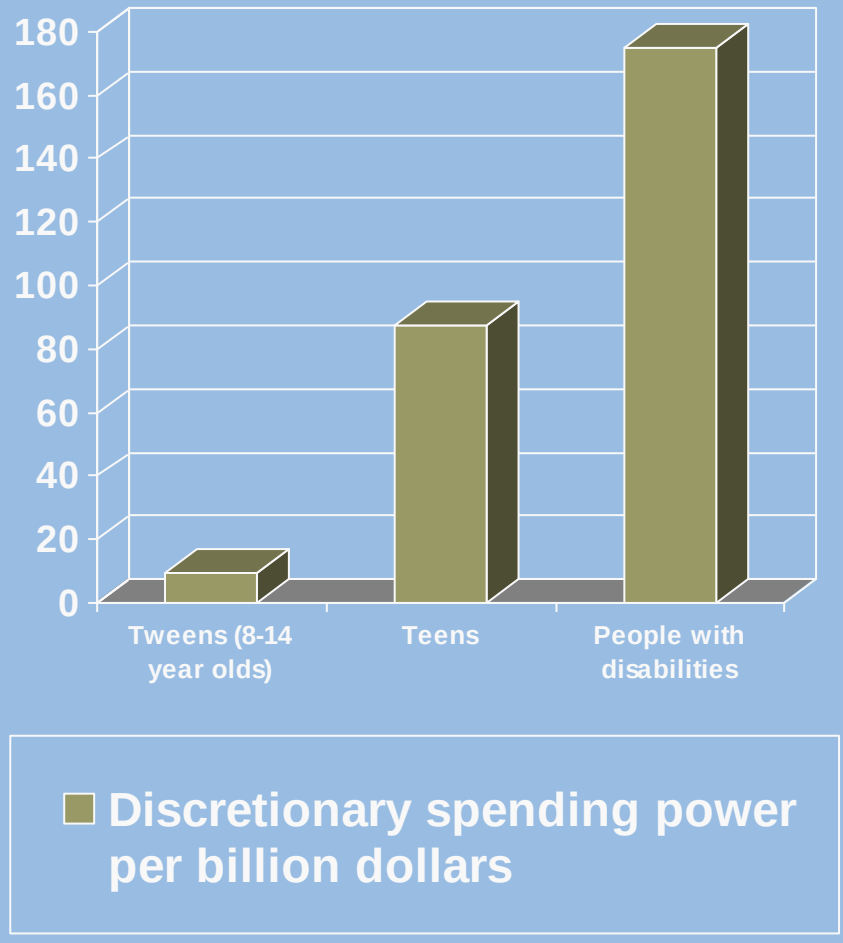
Recreation and fitness facilities must begin to appeal to the largest segment of the population:

People who are:

Older, Deconditioned, Overweight, Sedentary, & have a Disability

Spending Power of PWD

- PWD are a large and growing market!
- This group has $175 billion in discretionary spending power, according to the U.S. Department of Labor. That figure is more than twice the spending power of American teenagers and almost 18 times the spending power of the American "tweens" market.



NCPAD

Physical Activity is for Everybody!

Research Opportunities

- Research which **provides manufacturers the information** they need to make mass market equipment accessible.
- **Full range:** Elite athletes and the fitness club culture; attention Walmart shoppers; access built into inexpensive devices and apps, **not just high end consumer market**
- Clinical **use guidelines** for technology: transition from clinic to gym to home. **Guidelines for home use, without clinical guidance.**
- **What's the same, when and how does disability make a difference?** How can technology assist?
- Interface of **environment–device**; playgrounds; fitness trails; livability; encourage mobility -- but do no harm
- **Transition to increased AT support,** while maintaining exercise that tech free living provided (eg moving from manual to power mobility) protocols should include the new AT, but also ways to maintain fitness -- is the tradeoff to prevent shoulder injury, getting fat and unfit?
- **Infusion into professional training** "ask your physician before starting an exercise program," … if your heart is strong enough for this _____ activity"

Where to do need to go? How do we get there?

- **Participatory Medicine. E-patients**
  - **"Participatory Medicine is a cooperative model of health care that encourages and expects active involvement by all connected parties (patients, caregivers, healthcare professionals, etc.) as integral to the full continuum of care. The 'participatory' concept may also be applied to fitness, nutrition, mental health, end-of-life care, and all issues broadly related to an individual's health." http://participatorymedicine.org/ (1-23-2011). Their blog: http://e-patients.net/ is subtitled "because health professionals cannot do it alone."**
- **NIH-NICHD visioning process:**
  - **biomarkers (applications for monitoring)**
  - **moving beyond silos**
- **Participatory Action Research**

Technology-based Methods for Involvement

- **Ways for people with disabilities to become active contributors to the research that affects their lives.**
  - ***"Before the Internet, the idea that patients might help advance scientific knowledge was almost unthinkable. And their opportunities to contribute were few. Most could play only a passive role, serving as subjects for clinical trials designed and conducted by professional. Few if any researchers had considered the possibility that patients might be able to do real medical research – conducting experiments, collecting and analyzing data, and reporting significant and valid conclusion. Not until the Internet made it possible for large groups of patients with the same health concern to share their clinical experiences did the potential role of e-patients in medical research become apparent"***

  Research Methods: e.g. PhotoVoice and Pothole Scout.

- **Expand use of bidirectional info sharing in telehealth and telerehab for; social media; skype; peer to peer mentoring, etc.**

Participatory Knowledge Translation

- *If we are serious about bridging the gaps, we will find ways to collaborate that are based on the new disability paradigms, and which recognize and respect the expertise on both sides.*

- **Ask them what works! How are you staying fit, or trying to?** Professionals seem to forget that people who are living with chronic conditions have developed successful coping strategies. When clinicians see a person with a disability, all they sometimes listen to are the current problems, completely ignoring the extensive resource base the individual has developed. They neither recognize or try to incorporate into treatment plans, the acquired strengths and skills gained from living with a disability.

- **Research can then be designed to fill the gaps.**

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